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COMPLETE SPECIFICATION

1 SHEET

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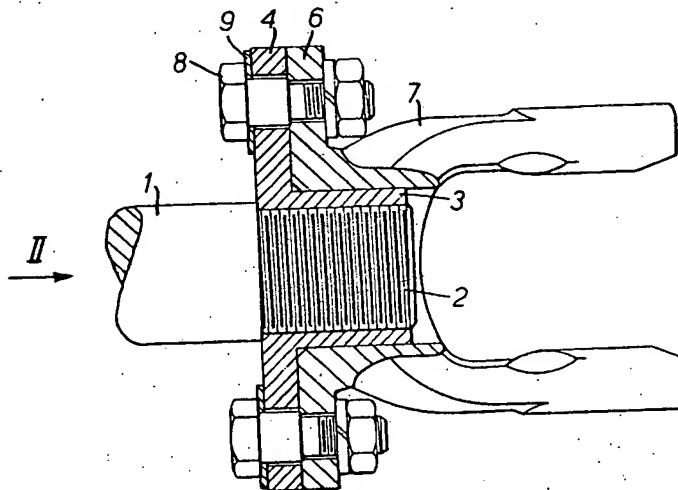


FIG. 1.

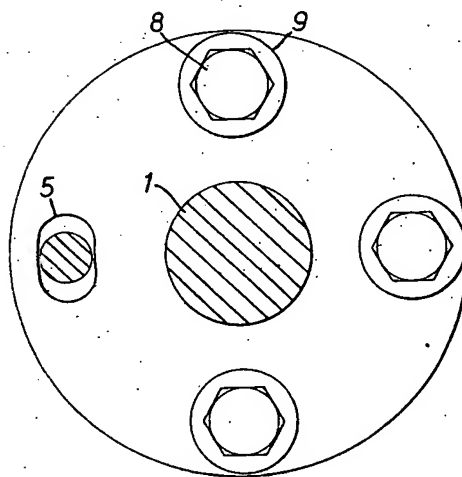


FIG. 2.

PATENT SPECIFICATION

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DRAWINGS ATTACHED.

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COMPLETE SPECIFICATION.

Reaper Unit Drive on Tractors and Agricultural Machines.

We, JEAN WALTERSCHEID, a German national, of Siegburg, Alte Lohmarer Strasse 59, Germany, and BERNHARD WALTERSCHEIDMÜLLER, a German national, of Lohmar/Rhld, Haus Zur Buchbitze, Germany (personally-responsible partners of the firm of JEAN WALTERSCHEID K.G.), do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to reaper units on tractors or other agricultural machines, comprising a cutter bar of the reciprocating toothed type having co-operating fixed and oscillating toothed members whereof the oscillating toothed member is driven by a crank mechanism from a rotary drive transmission connected to a power-take-off of the machine.

In reaper unit drives it is very difficult so to balance the rapidly reciprocating masses of the cutter beam and the crank rod as to eliminate vibration. In particular, conditions vary considerably in different speed ranges. Counterweights have been fitted to the drive crank in an attempt to reduce the effects of the forces of the masses.

Oscillograph recordings have shown that these devices cannot completely eliminate the torsional vibrations in the drive elements as a result of the mass forces. The torques fluctuating in the direction of rotation have a particularly harmful effect, since they result in premature damage of the securing and drive elements.

The object of the present invention is to provide intermittent lost motion in the systems of parts liable to vibration, by the incorporation of an appropriate rotary play

in the drive at a suitable place for the same. Vibrational deflections are thus reduced and the negative parts of such deflections, i.e. those situated below the zero line, are cut off.

According to the present invention, the drive for the crank mechanism of a reaper unit of the type specified for a tractor or other agricultural machine includes at least two transmission members coupled together in such a way as to provide a limited rotary play between them, for example a play of between 5° and 20°.

The invention may be carried into practice in various ways, but one specific embodiment will now be described by way of example with reference to the accompanying drawings, in which:—

Figure 1 is an axial section through a lost-motion connection in the drive to a reaper unit of a tractor; and

Figure 2 is an end view in partial section of the connection looking in the direction of the arrow 11 in Figure 1.

In the embodiment of the drawings an agricultural tractor carries a reaper unit (not shown) of the conventional reciprocating cutter bar construction, driven from the power-take-off of the tractor. The reaper unit comprises a fixed toothed cutter bar and a co-operating reciprocating toothed cutter bar which is caused to slide on and relatively to the fixed bar with a longitudinally - reciprocating motion by means of a crank mechanism whose crank-shaft is driven by a rotary transmission. The transmission is connected to the power-take-off of the tractor and includes a Cardan shaft having two aligned parts, between which a lost-motion coupling illustrated in Figures 1 and 2 is incorporated. The coupling comprises a screwthreaded

[Price 4s. 6d.]

2
bush 3 provided with a flange 4 and
mounted on the driving part 1 of the
Cardan shaft, the part 1 terminating in a
screwthreaded end 2, on which the bush
5 is mounted. The flange 4 is formed with
four arcuate slots 5. The co-operating
flange 6 of an articulated drive fork 7 car-
ries four bolts 8 which permit a certain
limited relative rotation between the two
10 flanges 4 and 6. Spring washers 9 are po-
sitioned beneath the heads of the bolts 8
and press the flanges 4 and 6 gently into
contact and thus give a certain additional
frictional damping and prevent any rattling
15 and deflection of the components. Depend-
ing on requirements the rotary play is be-
tween 5° and 20°. The fork 7 comprises or
is coupled to the output part of the Cardan
shaft drive for the crank mechanism of the
20 reaper cutter bar.

WHAT WE CLAIM IS:—

1. A power-driven reaper unit of the
type specified for a tractor or other agri-
cultural vehicle, having a rotary drive
25 transmission for driving its crank me-
chanism which includes at least two aligned
transmission members coupled together in
such a way as to provide a limited degree
of rotary play between them.
30
2. A reaper unit as claimed in Claim

1 in which the maximum rotary play is
an angle of between 5° and 20°.

3. A reaper unit as claimed in Claim 1
or Claim 2 in which the coupled trans-
mission members are disposed in a Cardan 35
shaft and are provided with stops to limit
the rotary play.

4. A reaper unit as claimed in Claim 3
in which one of the coupled transmission
members is a Cardan fork carrying stops 40
to limit its rotary play.

5. A reaper unit as claimed in any one
of Claims 1 to 4 in which the coupled
transmission parts respectively include co-
axial flanges one of which carries bolts 45
engaged in arcuate slots in the other flange
to provide the required limited rotary play
between the two flanges.

6. A reaper unit as claimed in Claim 5
in which the bolts are provided with spring 50
washers which press the flanges resiliently
into light frictional engagement.

7. A power-driven reaper unit having
a rotary drive transmission as specifically
described herein with reference to the ac- 55
companying drawings.

KILBURN & STRODE,
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Agents for the Applicants.